

Claims

We claim:

- 5        1. An anti-siphon fuel filler assembly for placement in a fuel tank, comprising:
  - a tube including a first end region adapted to be positioned in said fuel tank for allowing fuel to flow therethrough into said tank, said first end region including a first crimp and a second crimp; and
  - 10      a restriction structure positioned in said tube between said first crimp and said second crimp, said restriction structure including apertures sized for allowing fuel to flow therethrough while preventing the insertion of a siphon hose into said tank.
- 15      2. An anti-siphon assembly according to claim 1 wherein said restriction structure is manufactured by the process of extrusion.
- 20      3. An anti-siphon assembly according to claim 1 wherein said restriction structure comprises a hub and a plurality of spokes extending outwardly therefrom.
- 25      4. An anti-siphon assembly according to claim 1 wherein said tube further comprises deflection structure for retaining said tube in said tank.
- 30      5. An anti-siphon assembly according to claim 1 wherein said first crimp includes a plurality of crimped regions positioned around a perimeter of said first end region of said tube.
6. An anti-siphon assembly according to claim 1 wherein said second crimp includes a crimped region that extends completely around a perimeter of an end of said first end region of said tube.

7. An anti-siphon assembly according to claim 1 wherein said tube and said restriction structure are manufactured of aluminum.

5 8. An anti-siphon assembly according to claim 1 wherein said first and second crimps each define a deflection that extends into an interior of said tube.

10 9. An anti-siphon assembly according to claim 3 wherein said hub defines an opening therein and wherein said plurality of spokes each define a opening therebetween so as to allow the flow of fuel therethrough.

15 10. An anti-siphon assembly according to claim 1 wherein said tube defines a tube inner diameter, said first crimp defines a first crimp inner diameter, said second crimp defines a second crimp inner diameter, said restriction structure defines a restriction structure outside diameter, and wherein said restriction structure outside diameter is greater than said first and second crimp inner diameters and is smaller than said tube inner diameter.

20 11. A fuel tank, comprising:  
a tank including an opening for receiving fuel therethrough; and  
a filler tube insert positioned in said tank opening, said filler tube insert including a first end region received within said tank and having an anti-siphon insert crimped within said first end region, said anti-siphon insert including a plurality of apertures for allowing fuel flow therethrough.

25 12. A fuel tank according to claim 11 further comprising a filler tube mounted on said opening wherein said filler tube insert is positioned within said filler tube.

13. A fuel tank according to claim 11 wherein said filler tube insert has a cylindrically symmetrical cross sectional shape that defines said plurality of apertures.

5 14. A fuel tank according to claim 11 wherein said filler tube first end region includes a first crimped region a second crimped region, and said anti-siphon insert is crimped within said filler tube insert between said first and second crimped regions.

10 15. A fuel tank according to claim 11 wherein said anti-siphon insert is secured within said filler tube insert in the absence of welds.

16. A method of manufacturing an anti-siphon fuel filler assembly for placement in a fuel tank, comprising:

15 providing an elongate fuel filler tube having a first end region adapted for placement in a fuel tank;

crimping said fuel filler tube in said first end region to define a first crimped region;

20 placing an anti-siphon insert in said first end region and adjacent said first crimped region; and

crimping said fuel filler tube in said first end region to define a second crimped region, wherein said anti-siphon insert is secured in said fuel filler tube between said first and second crimped regions.

25 17. A method according to claim 16, prior to placing an anti-siphon insert in said first end region, further comprising extruding said anti-siphon insert.

18. A method according to claim 17 wherein said anti-siphon insert is extruded having a hub-and-spoke cross sectional shape.

19. A method according to claim 16 wherein said step of crimping said first crimped region comprises crimping a plurality of regions around a perimeter of said fuel filler tube.

5 20. A method according to claim 16 wherein said first and second crimped regions each define indentations that extend only partially into an interior of said fuel filler tube.

10 21. An anti-siphon fuel filler insert for placement in a filler neck tube of a fuel tank comprising:

tube means including a first end region adapted to be positioned in said fuel tank for allowing fuel to flow therethrough into said tank; and

restriction means positioned in said tube and having a central region and a plurality of arms extending cylindrically, symmetrically outwardly therefrom, said arms defining apertures therebetween for the flow of fuel therethrough.

15 22. An anti-siphon insert according to claim 21 wherein said restriction means is manufactured by the process of extrusion.

20 23. An anti-siphon insert according to claim 21 wherein said restriction means is secured within said tube means exclusively by indentations in said tube means.

25 24. An anti-siphon insert according to claim 23 wherein said indentations extend only partially into an interior of said tube means.